1. Solve the equation for x and choose the interval that contains x (if it exists).

$$9 = \ln \sqrt[7]{\frac{26}{e^{5x}}}$$

A. $x \in [-3.35, -2.42]$

B. $x \in [-11.96, -11.3]$

C. $x \in [-4.61, -3.11]$

D. There is no Real solution to the equation.

E. None of the above.

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2. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$5^{4x+2} = 49^{3x+4}$$

A. $x \in [-2.6, -1.5]$

B. $x \in [0.4, 3.8]$

C. $x \in [-0.5, 0.3]$

D. $x \in [10.7, 12.7]$

E. There is no Real solution to the equation.

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3. Which of the following intervals describes the Domain of the function below?

$$f(x) = e^{x+1} + 7$$

A. $(a, \infty), a \in [-14, -3]$

B. $(-\infty, a], a \in [2, 10]$

C. $[a, \infty), a \in [-14, -3]$

D. $(-\infty, a), a \in [2, 10]$

E. $(-\infty, \infty)$

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4. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$2^{-4x+5} = 125^{-3x-4}$$

A. $x \in [21.8, 25.6]$

B. $x \in [-1.3, -0.3]$

C. $x \in [8.9, 9.9]$

D. $x \in [-2.2, -1.3]$

E. There is no Real solution to the equation.

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5. Which of the following intervals describes the Range of the function below?

$$f(x) = \log_2(x + 2) + 5$$

A. $(-\infty, a), a \in [4.4, 5.6]$

B. $[a, \infty), a \in [-1.2, 2.1]$

C. $[a, \infty), a \in [-4.3, 0.3]$

D. $(-\infty, a), a \in [-6.7, -2.2]$

E. $(-\infty, \infty)$

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6. Which of the following intervals describes the Range of the function below?

$$f(x) = -\log_2(x + 9) - 4$$

A. $[a, \infty), a \in [-12, -6]$

B. $(-\infty, a), a \in [1, 7]$

C. $(-\infty, a), a \in [-5, 0]$

D. $[a, \infty), a \in [5, 11]$

E. $(-\infty, \infty)$

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7. Solve the equation for x and choose the interval that contains x (if it exists).

$$20 = \sqrt[6]{\frac{14}{e^{3x}}}$$

A. $x \in [-1.7, -1]$

B. $x \in [4.9, 6.1]$

C. $x \in [-41.2, -40.3]$

D. There is no Real solution to the equation.

E. None of the above.

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8. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_5(-4x + 6) + 4 = 2$$

A. $x \in [9.5, 10.5]$

B. $x \in [-0.51, 2.49]$

C. $x \in [5.5, 7.5]$

D. $x \in [-4.75, -1.75]$

E. There is no Real solution to the equation.

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9. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_5(4x + 6) + 4 = 2$$

A. $x \in [-2.1, 2.1]$

B. $x \in [2, 6.1]$

C. $x \in [-6.7, -6]$

D. $x \in [-9.8, -7.7]$

E. There is no Real solution to the equation.

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10. Which of the following intervals describes the Domain of the function below?

$$f(x) = -e^{x-2} + 7$$

A. $(-\infty, a), a \in [4, 11]$

B. $(a, \infty), a \in [-8, -3]$

C. $[a, \infty), a \in [-8, -3]$

D. $(-\infty, a], a \in [4, 11]$

E. $(-\infty, \infty)$

---

11. Solve the equation for x and choose the interval that contains x (if it exists).

$$6 = \sqrt[4]{\frac{21}{e^{8x}}}$$

A. $x \in [-0.55, -0.4]$

B. $x \in [-0.19, 0.29]$

C. $x \in [-3.6, -3.21]$

D. There is no Real solution to the equation.

E. None of the above.

---

12. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$5^{-2x+2} = \left(\frac{1}{343}\right)^{-3x-5}$$

A. $x \in [-8.2, -6]$

B. $x \in [-1.5, -1]$

C. $x \in [24.7, 26.8]$

D. $x \in [-1.2, 0.6]$

E. There is no Real solution to the equation.

13. Which of the following intervals describes the Domain of the function below?

$$f(x) = e^{x+2} + 1$$

A. $[a, \infty), a \in [-2.2, -0.3]$

B. $(-\infty, a), a \in [-0.9, 1.2]$

C. $(-\infty, a], a \in [-0.9, 1.2]$

D. $(a, \infty), a \in [-2.2, -0.3]$

E. $(-\infty, \infty)$

14. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$5^{5x-3} = 64^{2x+2}$$

A. $x \in [0.67, 3.67]$

B. $x \in [3.38, 6.38]$

C. $x \in [-55.59, -46.59]$

D. $x \in [-21.48, -16.48]$

E. There is no Real solution to the equation.

15. Which of the following intervals describes the Domain of the function below?

$$f(x) = \log_2(x - 4) - 9$$

A. $(-\infty, a], a \in [6, 17]$

B. $(a, \infty), a \in [3, 8]$

C. $[a, \infty), a \in [-11, -8]$

D. $(-\infty, a), a \in [-8, -2]$

E. $(-\infty, \infty)$

16. Which of the following intervals describes the Domain of the function below?

$$f(x) = \log_2(x+8) + 8$$

A. $(-\infty, a], a \in [-9, -1]$

B. $(-\infty, a), a \in [5, 12]$

C. $[a, \infty), a \in [5, 12]$

D. $(a, \infty), a \in [-9, -1]$

E. $(-\infty, \infty)$

17. Solve the equation for x and choose the interval that contains x (if it exists).

$$24 = \sqrt[3]{\frac{10}{e^{3x}}}$$

A. $x \in [-24.82, -24.05]$

B. $x \in [-2.95, -2.19]$

C. $x \in [-1.73, -1.18]$

D. There is no Real solution to the equation.

E. None of the above.

18. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_3(-2x+6) + 4 = 3$$

A. $x \in [3.3, 3.56]$

B. $x \in [2.61, 3.43]$

C. $x \in [-10.57, -9.06]$

D. $x \in [-2.51, -2.22]$

E. There is no Real solution to the equation.

19. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_5(-4x+6)+5=2$$

A. $x \in [-2.5, 6.5]$

B. $x \in [-5.75, -2.75]$

C. $x \in [56.25, 60.25]$

D. $x \in [61.25, 66.25]$

E. There is no Real solution to the equation.

20. Which of the following intervals describes the Range of the function below?

$$f(x) = -e^{x-4} - 8$$

A. $(-\infty, a), a \in [-8, -7]$

B. $(a, \infty), a \in [7, 12]$

C. $(-\infty, a], a \in [-8, -7]$

D. $[a, \infty), a \in [7, 12]$

E. $(-\infty, \infty)$

21. Solve the equation for x and choose the interval that contains x (if it exists).

$$13 = \sqrt[7]{\frac{28}{e^{5x}}}$$

A. $x \in [2.92, 5.92]$

B. $x \in [-21.87, -17.87]$

C. $x \in [-2.36, 0.64]$

D. There is no Real solution to the equation.

E. None of the above.

22. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$2^{4x-2} = 9^{3x+5}$$

A. $x \in [-3.24, -2.24]$

B. $x \in [4, 11]$

C. $x \in [10.37, 14.37]$

D. $x \in [-2.83, 0.17]$

E. There is no Real solution to the equation.

23. Which of the following intervals describes the Range of the function below?

$$f(x) = -e^{x+4} + 2$$

A. $[a, \infty), a \in [-5, 1]$

B. $(-\infty, a), a \in [-1, 10]$

C. $(-\infty, a], a \in [-1, 10]$

D. $(a, \infty), a \in [-5, 1]$

E. $(-\infty, \infty)$

24. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$2^{4x+2} = 343^{2x+5}$$

A. $x \in [-4.5, -2.9]$

B. $x \in [12.5, 15.1]$

C. $x \in [-1, 0.6]$

D. $x \in [1.4, 3]$

E. There is no Real solution to the equation.

25. Which of the following intervals describes the Range of the function below?

$$f(x) = \log_2(x+3) - 8$$

A. $(-\infty, a), a \in [-10, -6]$

B. $(-\infty, a), a \in [7, 11]$

C. $[a, \infty), a \in [-6, -2]$

D. $[a, \infty), a \in [3, 5]$

E. $(-\infty, \infty)$

26. Which of the following intervals describes the Domain of the function below?

$$f(x) = -\log_2(x+8) + 4$$

A. $(-\infty, a), a \in [5.8, 8.9]$

B. $(a, \infty), a \in [-9.3, -6]$

C. $[a, \infty), a \in [3.8, 7.1]$

D. $(-\infty, a], a \in [-6.6, -2.7]$

E. $(-\infty, \infty)$

27. Solve the equation for x and choose the interval that contains x (if it exists).

$$12 = \sqrt[5]{\frac{27}{e^{3x}}}$$

A. $x \in [-24.1, -19.1]$

B. $x \in [-6.04, -2.04]$

C. $x \in [-1.56, 0.44]$

D. There is no Real solution to the equation.

E. None of the above.

28. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_5(2x+8)+5=2$$

A. $x \in [-4,-3]$

B. $x \in [5.5, 12.5]$

C. $x \in [-122.5, -114.5]$

D. $x \in [-129.5, -123.5]$

E. There is no Real solution to the equation.

29. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_4(2x+7)+4=2$$

A. $x \in [0.5, 7.5]$

B. $x \in [0.5, 7.5]$

C. $x \in [-7.47, -2.47]$

D. $x \in [11.5, 19.5]$

E. There is no Real solution to the equation.

30. Which of the following intervals describes the Domain of the function below?

$$f(x) = -e^{x+7}+7$$

A. $(a,\infty), a \in [-11, 0]$

B. $(-\infty, a], a \in [6, 9]$

C. $[a,\infty), a \in [-11, 0]$

D. $(-\infty, a), a \in [6, 9]$

E. $(-\infty, \infty)$